QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

Primary Radicles of the Lymphatic System.

A METHOD for measuring in a satisfactory manner the primary radicles of the lymphatic system has been vainly sought for during the past three centuries. M. SAPPEY has recently read a paper before the *Académie des Sciences*, in which he states that he has discovered a method by which they can be clearly seen. His method demonstrates that the vessels of which this system is composed originate in the tissue of the organs by minute capillaries, the calibre of which does not exceed 1 mmm. ($\frac{1}{25000}$ inch), that these capillaries freely inosculate, and that at the level of their communications there exist very minute starred enlargements or swellings (lacunæ). A network of these minute capillaries and lacunæ represents the primary radicles of the lymphatic system. The chief cause of the failure to demonstrate these radicles heretofore is due to their perfect transparency. M. Sappey has succeeded in giving the capillaries and lacunæ a pale yellow colour, which enabled him to demonstrate them. This was done by filling these cavities with a quantity of the lowest order of vegetations of the lowest order of cryptogams. These microphytes, generally recognized as microbes, are sharply outlined. They differ markedly both in outline and configuration, but may be classed under two principal groups, the one having the form of rounded and brilliant cells, and belonging to the micrococcus family, the others elongated and cylindrical, belonging to the bacteria family.

If the microbes proliferate rapidly in the plasma of lymph, they grow with equal rapidity and abundance in blood serum, and if their presence is necessary for a demonstration, it is important that they should appear in the lymphatic capillaries only, and not in the blood capillaries. In order to prevent this accident he injected the blood capillaries with an acidulated liquid, sufficiently abundant to carry away their contents; in other words, he substituted for the blood plasma, a favourable medium for the development of the microphytes, a solution in which they cannot proliferate, with the result that no vestige of them could be found in the blood capillaries. The primary radicles of the lymphatic system, filled, on the contrary, with coloured cells, were alone seen in the field of the microscope, and so clearly, in fact, that they could be studied in their entirety, and as to their smaller details, and most minute variations.

Is there a communication between the primary lymphatic radicles and those of the blood capillaries? At the beginning of his studies on the absorbent vessels, M. Sappey believed it, and developed this opinion in his works. In admitting this communication and supporting it, he acted on general considerations deduced from normal and pathological anatomy; he had no observed fact to support this view. But he now declares that by a certain procedure the closest *connections* of the lymph and blood capillaries can be seen. The latter are of so large a calibre as compared with the former that they may be likened to the trunks of trees, and the lymph capillaries to climbing plants embracing all parts of the tree, the lacunæ representing the leaves of the climbing plants. When a preparation is examined at the moment of immersion in the reagent for bringing out the lacunæ, at first the blood capillary only is seen. Then, under the influence of the reagent, lacunæ appear here and there: the blood capillary gradually disappears as the lacunæ become more and more visible. During this successive appearance and disappearance of the lymph and blood capillaries, there is a moment when the observer can distinguish, at the same time, the two kinds of vessels, and in the best conditions for observing their communications if they exist. But even in these favourable conditions it has so far been impossible for him to see the slightest communication between them. From these new and concise facts, and apart from all deductions, he concludes that there is no reason for admitting an intercommunication; the lymphatic vessels are hermetically sealed. Blood plasma penetrates the primary radicles by simple transudation or by capillarity, by undergoing only slight modifications.

The histological characters of the primary radicles differ according as one considers the network of the lacunæ and minute capillaries or the subjacent network. The superficial network is composed of an *ensemble* of cavities, the walls of which have, apparently, no endothelial cells. Nitrate of silver, which acts so readily in bringing out these cells in other parts of the circulatory apparatus, has no effect on the minute capillaries and the lacunæ. Their walls are formed simply of an amorphous (structureless?) membrane. The collecting network under the preceding has a more complex texture. On the vessels composing it are seen endothelial cells easily shown by nitrate of silver. These cells form a continuous sheath which lines the internal surface of the proper or structureless membrane. The wall of the sub-papillæ vessels or collectors is composed, then, of two layers. As to the existence of a muscular structure in these two layers, M. Sappey cannot speak with certainty. He has not seen the slightest trace of such structure, and from a uniform failure to see it after repeated trials he thinks that he is justified in saying that no such structure exists at the origin of the lymphatic vessels nor for some distance from their origin.—*L'Union Méd.*, June 23, 1883.

A New Centre of Vision in the Human Eye.

For a long time M. DELBŒUF has observed that sensibility for light is greater at the periphery than at the centre of the retina. If one uses a vacillating flame, such as given by a candle, it will be seen that, though there may be but little light on the book or paper immediately before the eye, there is a dazzling, sometimes almost insupportable glare, on the other white papers on the table, seen by indirect vision. Or the reader may turn his back to the window, holding in the hand a white paper almost horizontally, and a slightly movable shadow is seen projected on the paper, the movements of the shadow being more visible if the eyes are directed to the top or the sides.

After a series of experiments on this subject M. Delbœuf draws the following conclusions:—